

The Research Behind *PAth to Literacy*

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Overview

The latest version of The Nation's Report Card indicates that only 38% of 12th graders demonstrate proficient reading skills (National Center for Education Statistics 2014). Many children are finishing school without the ability to read. Research has shown that developmental trajectories for reading skills begin early in the preschool years (National Early Literacy Panel [NELP] 2008). Once students fall behind their peers on language and literacy, they often continue to struggle throughout the school years (Foster and Miller 2007).

Multiple skills have been associated with early reading ability, including phonological awareness and alphabet knowledge (NELP 2008). Combined, these skills are fundamental building blocks for reading. There are indications that high-quality curricula that teach these skills prevent later reading problems (Torgesen 2002). Unfortunately, many preschool students are not exposed to these high-level curricula (Justice et al. 2008). Because planning high-quality instruction is demanding on teachers, scripted curricula provide a low-effort

way for teachers and aides to teach important school readiness skills.

The response to intervention (RTI) or multitiered systems of support (MTSS) approach is a multitiered instructional framework with the goal of providing high-quality instruction to students with a range of needs and regular progress monitoring (Greenwood et al. 2012). Applications of tiered intervention models, particularly in the area of reading instruction, have been shown to be more effective than traditional approaches (e.g., Fuchs et al. 2008; O'Connor, Harty, and Fulmer 2005). The RTI/MTSS model provides instruction in the students' least restrictive environment, consistent with federal special education mandates (Barnett, VanDerHeyden, and Witt 2007). In theory, by providing high-quality instruction to all students before they fall behind, the number of students labeled with a disability will decrease (Fuchs and Fuchs 2006).

RTI/MTSS typically is represented graphically as a pyramid divided into tiers (e.g., three; Fletcher and Vaughn 2009). These tiers signify levels of increasingly intense instruction (moving up the pyramid) and the approximate percentage of the student group. The lowest level of the pyramid (Tier 1) represents the general education curriculum that applies to all children. The peak of the pyramid (Tier 3) represents the most intense, individualized services, which are reserved for those few students for whom other services did not result in adequate progress. Between Tiers 1 and 3 is secondary tier instruction, intended for students who need additional support (Gersten et al. 2008). Children whose progress in Tier 1 does not meet an expected level based on screening and progress monitoring data should receive daily small-group instruction (i.e., Tier 2; Fletcher and Vaughn 2009).

Research Evidence

Research on early literacy has identified several basic skills necessary for reading achievement,

including phonological awareness, alphabet and print knowledge, vocabulary, and language comprehension (Carta et al. 2014; McConnell et al. 2014; Spencer et al. 2013). Most students who have later reading difficulties typically demonstrate weaknesses in one or more of these skills. Curricula that teach phonological awareness and alphabet skills simultaneously have been correlated with improved reading outcomes (NELP 2008).

Phonological awareness typically develops around the preschool years and is predictive of later reading outcomes (Storch and Whitehurst 2002). Nonetheless, it is a skill that does not seem to develop naturally (Wagner and Torgesen 1987). Explicit instruction with multiple opportunities for students to respond and practice the skills may be necessary for the development of phonological awareness (Phillips, Clancy-Menchetti, and Lonigan 2008). Thus, preschool-age children should be directly taught phonological awareness skills in preparation for entering school and beginning reading.

Letter name and sound knowledge is perhaps the best predictor of later reading ability (e.g., Schatschneider et al. 2004). Letter knowledge appears to be correlated with phonological awareness, and there is some evidence that they may influence each other (Johnston, Anderson, and Holligan 1996). Alphabet knowledge taught in conjunction with phonological awareness seems to be particularly beneficial. Training on phonological awareness and alphabet skills seems to be more effective than a whole-word approach to reading (Fielding-Barnsley 1997).

Many preschool curricula include instruction on phonological awareness and alphabet knowledge skills. However, not all preschool and early childcare centers follow a set curriculum. Even in centers that include phonological awareness instruction, some students require supplemental support (Greenwood et al. 2012). Scripted curricula may be designed for teachers, aides, and speech-language pathologists to use with students who require additional support to develop early literacy skills.

A series of experimental studies using the *Path to Literacy* curriculum have been conducted

over the past three years. A published pilot study (Noe et al. 2014) examined the use of a scripted intensive intervention for children who did not demonstrate progress following a small-group supplemental curriculum for phonological awareness. This multiple baseline design study examined the effects of a Tier 3 early literacy intervention on low-income preschool children's ability to identify first sounds in words. Members of the research team delivered the intervention. Weekly progress monitoring data showed that five of the seven participating children made progress on first sound identification. The DIBELS First Sound Fluency measure was used as the primary outcome measure in this study (Dynamic Measurement Group 2006). Children who made progress on first sound identification generally demonstrated gains on more distal measures of phonological awareness, such as the Test of Preschool Early Literacy–Phonological Awareness subtest (Lonigan et al. 2007) and on Individual Growth and Development Indicator (IGDI) measures (McConnell et al. 2014).

After the pilot study, the lesson scripts were modified, and an early efficacy study was conducted (Kruse et al. 2015). In a multiple baseline design across groups, seven children across three classrooms participated in a small-group (two to three children) researcher-led intervention using the *Path to Literacy* curriculum. Participants demonstrated low and stable baseline values on the DIBELS First Sound Fluency outcome measure. The intervention produced meaningful gains for all children on the primary outcome measure of DIBELS First Sound Fluency (Dynamic Measurement Group 2006). Most children also demonstrated gains on other measures of phonological awareness and alphabet knowledge, which resulted in moderate to large effect sizes.

Finally, implementation by teachers and teacher aides was evaluated in a multisite cluster randomized design study (Goldstein et al. 2016). Students were identified in 39 classrooms, 20 in childcare centers in Tampa, Florida, 11 in public prekindergarten (pre-K) classrooms in Kansas City,

Kansas, and 8 in public pre-K classrooms in Columbus, Ohio. In this study, classrooms were randomly assigned to the *PAth to Literacy* or the *Story Friends* curricula. Teachers or aides in 20 classrooms implemented this standard treatment protocol in their classrooms with researcher-identified children. The curricula were delivered by teachers who participated in a 2.5-hour training session and received weekly coaching support from the research staff. Supplemental training manuals and videos also were provided to support teachers. Student progress was measured at the halfway point of the intervention, immediately after the intervention, and 2–3 weeks after the intervention (maintenance). Assessments included the DIBELS (First Sound Fluency, Word Parts Fluency), IGDIs (Rhyming, First Sounds, Sound Identification), and a research-developed letter-sound correspondence mastery monitor. Multilevel modeling revealed that children receiving *PAth to Literacy* demonstrated significantly greater gains on the DIBELS First Sound Fluency and Word Parts Fluency measures. At the end of the study, they averaged over 14 on First Sound Fluency, and 82% of the children receiving *PAth to Literacy* had met the kindergarten benchmark for First Sound Fluency, compared to 34% of the children in the *Story Friends* comparison condition. Teachers also reported overall satisfaction with the lessons.

The findings of these studies demonstrated success in the iterative development process underlying the *PAth to Literacy* scripted curriculum for Tier 2 and Tier 3 instruction for pre-K children. Goldstein and Olszewski (2015) describe the concurrent process of curriculum development informed by implementation considerations during the process of scale up of our evaluation efforts. Through this process, we were able to demonstrate improvements in the gains in phonological awareness and alphabet knowledge that students experienced. Moreover, we were able to prepare lessons that were easy to deliver with high fidelity with minimal training and coaching and that was rated as highly acceptable by teachers and paraprofessionals.

REFERENCES

- Barnett, David W., Amanda M. VanDerHeyden, and Joseph C. Witt, J.C. 2007. "Achieving Science-based Practice through Response to Intervention: What It Might Look Like in Preschools." *Journal of Educational and Psychological Consultation* 17: 31–54.
- Carta, Judith J., Charles R. Greenwood, Jane Atwater, Scott R. McConnell, Howard Goldstein, and Ruth A. Kaminski. 2014. "Identifying Preschool Children for Higher Tiers of Language and Early Literacy Instruction within a Response to Intervention Framework." *Journal of Early Intervention* 36 (4): 281–91.
- Dynamic Measurement Group. 2006. *First Sound Fluency—Experimental Version*. Eugene, OR: Author.
- Fielding-Barnsley, Ruth. 1997. "Explicit Instruction in Decoding Benefits Children High in Phonemic Awareness and Alphabet Knowledge." *Scientific Studies of Reading* 1 (1): 85–98.
- Fletcher, Jack, and Sharon Vaughn. 2009. "Response to Intervention: Preventing and Remediating Academic Difficulties." *Child Development Perspectives* 3 (1): 30–7.
- Foster, Wayne A., and Merideth Miller. 2007. "Development of the Literacy Achievement Gap: A Longitudinal Study of Kindergarten through Third Grade." *Language, Speech, and Hearing Services in Schools* 38 (3): 173–81.
- Fuchs, Douglas, Donald L. Compton, Lynn S. Fuchs, Joan Bryant, and G. Nicole Davis. 2008. "Making 'Secondary Intervention' Work in a Three-Tier Responsiveness-to-Intervention Model: Findings from the First-Grade Longitudinal Reading Study of the National Research Center on Learning Disabilities." *Reading and Writing* 21 (4): 413–36.
- Fuchs, Douglas, and Lynn S. Fuchs. 2006. "Introduction to Response to Intervention: What, Why, and How Valid Is It?" *Reading Research Quarterly* 41: 93–9.
- Gersten, Russell, Donald Compton, Carol M. Connor, Joseph Dimino, Lana Santoro, Sylvia Linan-Thompson, and W. David Tilly. 2008. *Assisting Students Struggling with Reading: Response to Intervention and Multi-Tier Intervention for Reading in the Primary Grades. A Practice Guide* (NCEE 2009-4045). Washington, DC: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education.
- Goldstein, Howard, and Arnold Olszewski. 2015. "Developing a Phonological Awareness Curriculum: Reflections on an Implementation Science Framework." *Journal of Speech, Language, and Hearing Research* 58: S1837–50. doi: 10.1044/2015_JSLHR-L-14-0351.
- Goldstein, Howard, Arnold Olszewski, Christa Haring, Charlie R. Greenwood, Luke McCune, Judith Carta, Jane Atwater, Gabriela Guerrero, Naomi Schneider, Tayna McCarthy, and Elizabeth Kelley. *Efficacy of a Tier 2 Curriculum to Teach Phonemic Awareness to Preschoolers with Delays in Early Literacy Development* (submitted 2016).

- Greenwood, Charles R., Judith J. Carta, Jane Atwater, Howard Goldstein, Ruth Kaminski, and Scott R. McConnell. 2012. "Is a Response to Intervention (RTI) Approach to Preschool Language and Early Literacy Instruction Needed?" *Topics in Early Childhood Special Education* 33 (8): 48–64.
- Johnston, Rhona S., Marjorie Anderson, and Christopher Holligan. 1996. "Knowledge of the Alphabet and Explicit Awareness of Phonemes in Pre-Readers: The Nature of the Relationship." *Reading and Writing* 8 (3): 217–34.
- Justice, Laura M., Andrew J. Mashburn, Bridget K. Hamre, and Robert C. Pianta. 2008. "Quality of Language and Literacy Instruction in Preschool Classrooms Serving At-Risk Pupils." *Early Childhood Research Quarterly* 23 (1): 51–68.
- Kruse, Lydia G., Trina D. Spencer, Arnold Olszewski, and Howard Goldstein. 2015. "Small Groups, Big Gains: Efficacy of a Tier 2 Phonological Awareness Intervention with Preschoolers with Early Literacy Deficits." *American Journal of Speech-Language Pathology* 24 (2): 189–205. doi: 10.1044/2015_AJSLP-14-0035.
- Lonigan, Christopher J., Richard K. Wagner, Joseph K. Torgesen, and Carol A. Rashotte. 2007. *Test of Preschool Early Literacy (TOPEL)*. Austin, TX: PRO-ED.
- McConnell, Scott R., Alisha K. Wackerle-Hollman, Tracy A. Roloff, and Michael Rodriguez. 2014. "Designing a Measurement Framework for Response to Intervention in Early Childhood Programs." *Journal of Early Intervention* 36 (4): 263–80.
- National Center for Education Statistics. 2014. *The Nation's Report Card: Are the Nation's 12th-Graders Making Progress in Mathematics and Reading?* (NCES 2014-087). Washington, DC: Institute of Education Sciences, U.S. Department of Education.
- National Early Literacy Panel. 2008. *Developing Early Literacy: Report of the National Early Literacy Panel*. Washington, DC: National Institute for Literacy.
- Noe, Sean, Trina D. Spencer, Lydia Kruse, and Howard Goldstein. 2014. "Effects of a Tier 3 Phonological Awareness Intervention on Preschoolers' Emergent Literacy." *Topics in Early Childhood Special Education* 34: 27–39.
- O'Connor, Rollanda E., Kristin R. Harty, and Deborah Fulmer. 2005. "Tiers of Intervention in Kindergarten through Third Grade." *Journal of Learning Disabilities* 38: 532–38.
- Phillips, Beth M., Jeanine Clancy-Menchetti, and Christopher J. Lonigan. 2008. "Successful Phonological Awareness Instruction with Preschool Children." *Topics in Early Childhood Special Education* 28 (1): 3–17.
- Schatschneider, Christopher, Jack M. Fletcher, David J. Francis, Coleen D. Carlson, and Barbara R. Foorman. 2004. "Kindergarten Prediction of Reading Skills: A Longitudinal Comparative Analysis." *Journal of Educational Psychology* 96 (2): 265–82.
- Spencer, Elizabeth J., Trina D. Spencer, Howard Goldstein, and Naomi Schneider. 2013. "Identifying Early Literacy Learning Needs: Implications for Child Outcome Standards and Assessment Systems." In *Literacy in Preschool and Kindergarten Children: The National Early Literacy Panel and Beyond*, edited by Timothy Shanahan and Christopher Lonigan, 45–70. Baltimore: Paul H. Brookes.
- Storch, Stacey A., and Grover J. Whitehurst. 2002. "Oral Language and Code-Related Precursors to Reading: Evidence from a Longitudinal Structural Model." *Developmental Psychology* 38 (6): 934–47.
- Torgesen, Joseph K. 2002. "The Prevention of Reading Difficulties." *Journal of School Psychology* 40 (1): 7–26.
- Wagner, Richard K., and Joseph K. Torgesen. 1987. "The Nature of Phonological Processing and Its Causal Role in the Acquisition of Reading Skills." *Psychological Bulletin* 101: 1–21.